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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/870,095

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Ken'ichi Kasazumi

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EXAMINER

ORTIZ CRIADO, JORGE L

ART UNIT

PAPER NUMBER

2627

DATE MAILED: 06/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/870,095

Applicant(s)

KASAZUMI ET AL.

Examiner

Jorge L. Ortiz-Criado

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10 and 11 is/are rejected.
- 7) ☒ Claim(s) 7-9 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 recite the limitation “the size of the light spot in the direction perpendicular to the information track in the reproducing operation is smaller than a diffraction limit”. The examiner cannot readily ascertain where in the application as originally filed a support for this is found. For purpose of examination, the claims are given the broadest reasonable interpretation. For purpose of examination this limitation is interpreted as to be ‘a normal light spot’.

Dependent claims 2-12 fall together accordingly.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Aoki J.P. Publication No.64-084458.

Regarding claim 1, Aoki discloses an optical pickup that is provided in an information recording/reproducing device and performs both information recording and information reproduction on/from an information carrier by irradiating the information carrier with light (see page 3, lines 7-8; Figures 1-3) comprising:

a coherent light source (See Figs. 1-3 ref# 14),

a focusing optical system that converges and directs light from the coherent light source onto an information carrier (See Fig. 1-3 , ref# 9,10); and

a spot size adjustor that “switches”/adjust a size of a light spot so that a size of a light spot in a direction perpendicular to an information track is  $d_1$  in an information reproducing operation and the size of a light spot in the direction perpendicular to an information track is  $d_2$  in an information recording operation, wherein  $d_2 < d_1$  is satisfied, and the size of the light spot in the direction perpendicular to the information track in the reproducing operation is smaller than a

diffraction limit”(interpreted as a normal spot”) (see page 5, line 18 to page 6, line 3; Figure 7-spots B and C).

Regarding claim 2, Aoki discloses wherein the spot size adjuster includes a variable phase filter that is disposed between the coherent light source and the focusing optical system and that is capable of varying a quantity of a phase shift (See page 9, line 3 to page 10 line 2; ref # 15; filter changes intensity distribution, i.e. “liquid crystal”), wherein the variable phase filter is divided into at least three regions to produce a phase difference in the direction perpendicular to an information track of the information carrier (See page 9, line 11 to page 10, line 19; Fig. 10, filter is divided in plural at least regions).

Regarding claim 10, Aoki discloses wherein the variable phase filter generates a phase difference between the regions, when information is recorded in the information carrier ; the variable phase filter does not generate a phase difference between the regions of the variable phase filter, when information is reproduced from the information carrier (See page 9, line 3 to page 10 line 2; ref # 15; filter changes intensity distribution, i.e. “liquid crystal”; applying/not applying voltages).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki J.P.

Publication No.64-084458 in view of Ito et al U.S. Patent No. 5,581,531.

In regard to claim 3, Aoki discloses all the limitations of claim 1 and 2 as outlined above. Aoki discloses that the variable phase filter is divided into "at least" three regions (plural/more than 3). However, fails to disclose wherein the variable phase filter is divided into three regions, and a width of a center region among the three is in a range of 10% to 20% of a width of a light beam passing through the variable phase filter.

But, this feature is well known in the art as evidenced by Ito et al., which discloses an optical pickup having a coherent light source a focusing optical system that converges and directs light from the coherent light source onto an information); and a spot size adjustor that reduces a size of a light spot formed on the information carrier in a recording operation relative to a size of a light spot in a reproducing operation, mainly in a direction perpendicular to an information track wherein the spot size adjuster includes a variable phase filter that is disposed between the coherent light source and the focusing optical system and that is capable of varying a quantity of a phase shift (See col. 4, line 56 to col. 5, line 1; col. 6, line 55 to col. 7, line 14), wherein the variable phase filter is divided into three regions to produce a phase difference in the direction perpendicular to an information track of the information carrier and a width of a

center region among the three is in a range of 10% to 20% of a width of a light beam passing through the variable phase filter (See col. 7, lines 1-14; Fig. 8).

Therefore it would have been obvious to one with an ordinary skill in the art at the time of the invention to divide the variable phase filter into three part and a width of a center region among the three in a range of 10% to 20% of a width of a light beam passing through the variable phase filter, in order to obtain the optimum intensity distribution of the light as taught by Ito et al.

4. Claims 4-6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Aoki J.P. Publication No.64-084458 in combination with Ito et al. U.S. Patent No. 5,581,531 and further in view of Sumi et al. U.S. Patent No. 5,796,683.

Regarding claim 4, the combination of Aoki and Ito et al. shows wherein the variable phase filter is divided into at least three regions to produce a phase difference in the direction perpendicular to an information track of the information carrier in a recording operation (See Aoki page 9, line 3 to page 10 line 2; ref # 15; filter changes intensity distribution, i.e. "liquid crystal") (See Ito et al. col. 4, lines 39 to col. 5, line 1; col. 6, line 29 to col. 7, line 14; Figs. 1, 7B, 7C, 7D), Furthermore Aoki discloses wherein the variable phase filter includes a liquid crystal element, but Aoki in combination with Ito et al. fails to specifically disclose the variable phase filter includes a homogeneous-alignment that is aligned in a direction parallel with a polarization direction of light from the coherent light source.

However this feature is well known in the art as evidenced by Sumi et al., which discloses a homogeneous-alignment liquid crystal element that is aligned in a direction parallel with a polarization direction of light from the coherent light source and divided into at least three regions (See col. 9, lines 1-14; Figs. 6, 11A, 13A, 13B, 18).

Therefore it would have been obvious to one with ordinary skill in the art at the time of the invention to include a homogeneous-alignment liquid crystal element that is aligned in a direction parallel with a polarization direction of light from the coherent light source in order to selectively decide, by change of voltages in the divided regions of the homogeneous-alignment liquid crystal element, whether or not produce a phase difference in the direction perpendicular to information track of the information carrier and dynamically obtain the desired size of the spot as suggested by Sumi et al.

Regarding claim 5, Aoki further teaches wherein the spot size adjustor is divided into at least three regions to produce a phase difference in the direction perpendicular to an information track of the information carrier in a recording operation and in combination with Ito et al. would show varying a quantity of birefringence (See Ito et al. col. 4, lines 39 to col. 5, line 1), but the combination fails to disclose wherein the spot size adjustor includes: a variable wavelength plate that is disposed between the coherent light source and the focusing optical system and that is capable of varying a quantity of birefringence and an analyzer disposed between the variable wavelength plate and the focusing optical system, wherein the variable wavelength plate is divided into at least three regions to produce a phase difference in the direction perpendicular to the information track of the information carrier.



However this feature is well known in the art as evidenced by Sumi et al., which discloses a variable wavelength plate that is disposed between the coherent light source and the focusing optical system and that is capable of varying a quantity of birefringence; and an analyzer disposed between the variable wavelength plate and the focusing optical system, wherein the variable wavelength plate is divided into at least three regions to produce a phase difference in the direction perpendicular to the information track of the information carrier (See Figs. 6,7A,7B,11A,11,B13A,13B,18).

Therefore it would have been obvious to one with ordinary skill in the art at the time of the invention to include a variable wavelength plate and an analyzer disposed between the variable wavelength plate and the focusing optical system in order to selectively decide, by change of voltages in the divided regions of the variable wavelength plate, whether or not produce a phase difference in the direction perpendicular to information track of the information carrier and dynamically obtain the desired size of the spot as suggested by Sumi et al.

Regarding claim 6, the combination of Aoki with Ito et al. and Sumi et al. would show wherein the variable wavelength plate includes a homogeneous-alignment liquid crystal element that is aligned in a direction parallel with a polarization direction of light from the coherent light source (See Sumi et al. col. 9, lines 1-14; Figs. 6,11A,13A,13B,18).

Regarding claim 11, the combination of Aoki with Ito et al. and Sumi et al. would show wherein the variable phase filter generates a phase difference between the regions, when information is recorded in the information carrier ; the variable phase filter does not generate a

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phase difference between the regions of the variable phase filter, when information is reproduced from the information carrier (See Aoki page 9, line 3 to page 10 line 2; ref # 15; filter changes intensity distribution, i.e. "liquid crystal"; applying/not applying voltages).

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

JP Publication No(s): 2000-113595.

US. Patent No.: 6,025,866.

#### *Allowable Subject Matter*

6. Claims 7,8,9 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### *Response to Arguments*

Applicant's arguments filed 04/12/2006 have been fully considered but they are not persuasive.

Applicant argues that Aoki does not disclose that the size of the light spot in the direction perpendicular to the information track in the reproducing operation is smaller than a diffraction limit.

The Examiner cannot concur with Applicant assertions. The examiner cannot readily ascertain where in the application as originally filed a support for this is found. Applicant's disclosure specifies that the reproduction spot is merely a "normal spot".

Aoki discloses that at the time of reproduction using a circularly shaped "normal spot" laser spot at point **B** shown in Fig. 7 and as shown in Fig. 11.

### *Conclusion*


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jorge L. Ortiz-Criado whose telephone number is (571) 272-7624. The examiner can normally be reached on Mon.-Thu.(12:30 pm- 9:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea L. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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